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U. S. DEPARTMENT OF AGRICULTURE

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS moving into fields in north central Kansas counties. Mating in Oklahoma, heavy egg deposition expected. Heavy flights in eastern Colorado, egg laying expected soon. (p. 601). Cooperative control summary. (p. 602). EUROPEAN CORN BORER larvae averaged 7 per plant in central Iowa. (p. 602).

BEET WEBWORM damaging in North Dakota. (p. 605). BLACK CUTWORM damaging in California and Oregon. (p. 605). LYGUS BUGS abundant in Idaho and numerous in New Mexico. Damaging in Arizona. (p. 606). SPOTTED ALFALFA APHID increasing in southern Arizona. (p. 607).

ROSY APPLE APHID more severe in Ohio than in past 10 years. (p. 609).

Worst outbreak of ALFALFA LOOPER in Washington since 1900. (p. 613). ONION MAGGOT more severe in Washington than in several years. Continues to be problem in Wisconsin. Damaging in New York. (p. 613).

SOUTHERN PINE BEETLE outbreak developing in southeastern Texas. (p. 617).

ADDITIONAL NOTES. (p. 608).

INSECTS not known to occur in the United States. (p. 621).

WEATHER OF THE WEEK ENDING JULY 7

Temperatures for the week averaged 6° to 9° below normal in the northwestern Great Plains and Great Basin of the Far West and within 3° of normal elsewhere. Rainfall west of the Continental Divide was heavy only in widely scattered spots, with little or none elsewhere. East of the Divide, weekly totals were extremely variable, ranging from none up to 13 inches. Showers occurred almost daily along the Canadian Border, and extended over the South and East during the weekend. Moderate to heavy weekly totals over the North Central Interior further improved moisture conditions, but soil moisture is still short in northwestern Montana and some other scattered local areas of the State, and more rain is needed in northwestern and north central North Dakota. Benefits of the generous rainfall in north central areas were offset in many local areas by storms and floods. The worst floods occurred in the western third and central portions of Iowa, where total rainfall ranged from 4 to 13 inches. Audubon measured 12.35 inches during a storm on July 2. Resulting floods along the Racoon, Nishnabotna, and Des Moines Rivers and many smaller streams took 19 lives and damaged crops and property to the extent of several million dollars. Up to 7 inches of rain on June 30 to July 1 in northern Wisconsin produced local flooding. Flooding also was reported in parts of Missouri, Oklahoma, and Kansas. In the latter State, rainfall at Winfield from July 4 through the 7th totaled 11.57 inches. In the Billings, Montana area, tornadoes, hail, and rain caused damage estimated at about \$5 million. In southeastern Wyoming, the hail center of America, hail damage was estimated in the millions. Wind and hail caused heavy damage in the Rapid City and Mobridge sections of South Dakota. Flash flooding near San Antonio, Texas on the 7th resulted from heavy rainfall which totaled 6.69 inches in that city for a 24-hour period on July 6-7, a new July record there. The week's rainfall generally was light south of the Ohio River and in the Carolinas and Virginia, and more rain now would be beneficial in Tennessee, Alabama, northern Georgia, and in about one-half the total area of the Carolinas. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE

GRASSHOPPERS - WISCONSIN - Third-instar nymphs very low in Buffalo and Trempealeau Counties. (Wis. Coop. Sur.). ILLINOIS - Nymphs averaged 16 per 100 sweeps in grass roadsides in central section, and 15 in eastern section. Hatching in western part of State, but not in damaging numbers. (Ill. Ins. Rpt.). IOWA - Ranged from newly hatched to full grown in southern and central areas. Populations low, 1-2 per square yard, no control appears necessary. (Iowa Ins. Inf.). MINNESOTA - Field counts generally low in all areas observed. Some increase in Melanoplus femur-rubrum hatch, particularly in alfalfa fields after hay removal. Averaged 15 per square yard, with marginal damage to soybeans in southern area. (Minn. Ins. Rpt.). NORTH DAKOTA - First instar to adult M. bivittatus and M. bilituratus present in western part of State. Control continued in many locations where still numerous. Nymphal survey in eastern area showed mostly non-economic infestations, although a few light to threatening infestations were observed and may require control in late crops. M. bivittatus and M. bilituratus mostly first to fifth instars, few adults present. M. femur-rubrum first to fourth instars becoming general in legumes. (N. D. Ins. Rpt.). SOUTH DAKOTA - Generally non-economic in south central and southeast regions except in Lyman, Union, Clay and Yankton Counties. South of Kennebec, Lyman County, spotted infestation averaged 25-30 nymphs per square yard in fields. Spotted in southern third of Clay and Yankton Counties. Spraying of heavy infestation in Union County continued. (King). Heavy in Bennett County with accompanying damage. Treatment underway. (Hantsbarger).

KANSAS - Continued to cause damage in north central counties, now moving into fields from roadsides, fence rows and weed patches. Border rows in corn fields and alfalfa fields showing feeding damage. Up to 40 per square yard in field margins in many localized areas. (Matthew). OKLAHOMA - Cooperative Federal-State control program in panhandle counties only partially complete due to inclement weather and high winds. Approximately 150,000 acres to be treated in Texas and Cimarron Counties and county-wide roadside program in Texas County. Roadside and marginal populations generally 20-30 per square yard, much higher in places. Aeoloplides turnbulli, Melanoplus bivittatus, M. packardi and M. bilituratus chief species, either fifth instar or adults. Mating, heavy egg deposition expected soon. Damage to sorghum and alfalfa margins and gardens generally heavy to severe in panhandle counties. Up to 50 per square yard in alfalfa fields and soil bank land. Range species commonly averaged 10-20 per square yard, with as many as 50 per square yard. Aulocara elliotti, M. packardi, Phlibostroma quadrimaculatum and A. turnbulli most common species. Rangeland damage evident in many localities. Averaged 6-15 per square yard on range in northwestern and northern counties, situation not as serious as in panhandle counties. (Coppock).

TEXAS - Remain heavy to severe on roadsides and rangelands in panhandle counties. M. bilituratus collected in Sherman and Dallam Counties, M. bivittatus in Randall County, Mestobregma sp. in Sherman County. Aulocara elliotti infestations in Moore, Dallam and Sherman Counties. Melanoplus spp. collected in Moore, Sherman, Dallam, Randall and Hartley Counties sent for determination. (Hawkins). Unknown species feeding on sorghum, Zavala County. (Harding). M. differentialis heavy, damaging Johnsongrass meadows and margins of cotton fields, Delta, Hunt and Rockwall Counties. (Davis). LOUISIANA - As many as 31 Neoconocephalus sp. per 100 sweeps on rice in Vermilion, Acadia and Jefferson Davis Parishes. (Spink). IDAHO - Camnula pellucida, predominantly third and fourth-instar nymphs, averaged up to 200 per square yard in small acreage of clover-grass mixture near Harvard, Latah County. (Portman). UTAH - Abundant in some orchards, gardens and alfalfa in Farmington-Kaysville area, Davis County, moderately serious in Enterprise-Beryl area, Washington and Iron Counties. (Knowlton). COLORADO - Heavy flights of M. bilituratus in eastern part of State. Females show advanced egg development. Egg laying expected within next 7 days. Migrating forms averaged 25-40 per square yard over much

of Morgan, Washington, Logan, Yuma, Sedgwick and Phillips Counties. Flight patterns depend on prevailing winds. Probability of second generation of *M. bilituratus* for 1958. (ARS, Ext. Serv., Exp. Sta.). NEVADA - Hatching in Panaca area, Lincoln County, and Fish Lake Valley, Esmeralda County. Scattered hatch between Hiko, Lincoln County, and Warm Spring, Nye County. (Lauderdale, June 27). ARIZONA - *Trimerotropis pallidipennis* adults numerous in Tuscon area. (Mendenhall, June 26). Control applied to 200 acres on 8 farms in Stanfield-Midway area. Many first instar *T. pallidipennis* present. (Miller).

Cooperative Control Summary: As of July 8, a total of 4,857,175 acres of roadsides, range and idle lands have been scheduled for grasshopper control in 55 counties in Colorado, Kansas, New Mexico, Oklahoma and Texas. Of this total, more than 2 million acres have been completed. This control program will provide protection to a vast acreage of cultivated crops. (PPC).

CRICKETS - OKLAHOMA - *Oecanthus* sp. common on alfalfa throughout State. (Coppock). WYOMING - *Anabrus simplex* abundant south of Casper, Natrona County, June 27. Moving east across rangeland. (Davison).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - NEW YORK - Damage observed on 2-10 percent of corn plants with tassels emerging, in Hudson Valley. Second-instar larvae prevailed. Egg laying will probably continue to mid-July and hatching to at least July 25. First egg masses in Niagara County averaged 2 per 100 plants. (N. Y. Wkly. Rpt., June 30). MARYLAND - First brood light in early sweet and field corn on Eastern Shore. One large sweet corn field showed 15 percent infestation. Pupation underway on lower shore. (U. Md., Ent. Dept.). VIRGINIA - Caused medium damage to corn in scattered areas of Carroll County. (Price). Caused 10 percent damage to 10-acre wheat field, Richmond County. (Farmer, Wilkins). NORTH CAROLINA - Severe in stalks and ears of sweet corn, Gates County. (Newsome, Farrier). WISCONSIN - Light on field corn, leaf feeding observed on about 4 percent of plants. Egg masses and first-instar larvae noted on 36-42 inch corn in Buffalo and Trempealeau Counties, June 26-27. No recent egg laying. (Wis. Coop. Sur.). MINNESOTA - Moth emergence 95-100 percent in all districts. Egg deposition increased, but counts still not high. Warm weather increased moth activity. Egg mass counts per 100 plants ranged 0-44 in southwest, 0-16 in south central, 0-4 in central and 0-8 in southeast districts. (Minn. Ins. Rpt.). ILLINOIS - Emergence almost complete throughout State. Tallest corn fields in eastern section averaged one percent infestation with 6 second-instar larvae per plant and 3.7 percent infestation with 2.2 larvae per plant in central section. Averaged 19 egg masses per 100 plants, 66 percent hatched, 16 percent infestation with 2.3 borers per plant in northern section. (Ill. Ins. Rpt.). OHIO - Emergence near 100 percent, egg deposition low except in isolated early fields. Crown feeding prominent in more advanced fields, first-generation infestation expected to be light. (Neiswander). IOWA - Moth activity high June 29, dropped off June 30. Six new egg masses per 100 plants on Boone County observation fields, few new egg masses on corn in Missouri River bottoms. Tall corn in west central area 65-96 percent infested, averaged 7 larvae per plant. (Iowa Ins. Inf.). ARKANSAS - Egg deposition on corn has begun in Phillips County. About 30 percent of larvae have pupated. (Ark. Ins. Rpt.). MISSOURI - Approximately 40 percent pupation, 10 percent emergence in southeast section. Remaining larvae mostly fifth instar. No new egg masses observed. (Jackson). Egg laying and hatch completed in central section. Averaged 3-16 larvae per stalk on 65-100 percent of untreated corn exceeding 45 inches in height. Larvae largely third to fifth instars. (Kyd, Thomas). SOUTH DAKOTA - Egg masses averaged 15 per 100 plants in north central region, 19 per 100 plants in east central region. No evidence of hatching. (Hantsbarger).

A CARABID (Agonoderus lecontei) - COLORADO - Damaged sorghum plantings in Kiowa County. (Ext. Serv.).

CHINCH BUG (Blissus leucopterus) - SOUTH CAROLINA - Moderate, scattered over Saluda County, killing corn and millet. Worst where these crops are near wheat and oats. (Nettles, et al.). TEXAS - Caused considerable damage to grain sorghum and corn, Kaufman County. (Randolph). MISSOURI - Continued to cause light to moderate damage to small corn and grain sorghums in west central and southwestern areas. (Kyd, Thomas). NORTH CAROLINA - Injured corn and milo locally, Cabarrus County. (Bowles). Invaded corn from small grain, Franklin County. (Baldwin). GEORGIA - Moderate on corn in Forsyth County. (Rucker).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae averaged 2-3 per ear on market corn at Alachua, Alachua County. (Fla. Coop. Sur.). ARKANSAS - Eggs and larvae numerous on sweet corn ears. (Ark. Ins. Rpt.). UTAH - Damage moderately severe in Washington County. In corn 10 days earlier than 1957 at Spanish Fork, Utah County. (Knowlton). Severe in tassels of field corn, Davis County. (Rogers, Knowlton). Larvae in 2-3 percent of early corn ears, areas north of Salt Lake City. (Dorst). TEXAS - Very light on grain sorghums in Brazos and Burleson Counties. (Randolph). WASHINGTON - Developing about normal or a little slower than usual at Walla Walla. (Cook). Heavy on 200 acres of corn at Wapato. Worse than in 1957. (Landis). MARYLAND - Light to moderate in whorls of early sweet and field corn, Queen Annes County. (U. Md., Ent. Dept.). MISSOURI - Egg counts very light on silking field corn, but larvae averaged 1-5 per ear tip in 60-95 percent of earlier corn, southeast area. (Kyd, Thomas). DELAWARE - Prevalent in silks and ears of sweet corn, Sussex County. (MacCreary, Conrad). VIRGINIA - Severe on corn in Henry County with 25 percent damage in one field, less in others. (Pollard). Caused heavy damage to corn in some Prince Edward County fields (Rowell, Striplin) and with sap beetles destroyed 25 percent of corn in a Halifax County field (Rowell, Dinwiddie).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Up to 50-75 per whorl on young sorghum in panhandle counties. (Coppock). MISSOURI - Very heavy on small grain sorghums in extreme southeast area where 80-100 percent of plants had 500-1,000 per plant. Lady beetles building up rapidly. (Kyd, Thomas).

FALL ARMYWORM (Laphygma frugiperda) - ARKANSAS - Beginning to pupate, moth emergence expected about July 13. (Ark. Ins. Rpt.). LOUISIANA - Light to moderate on late corn in Caddo, Bossier and Livingston Parishes. (Spink). MISSOURI - Light to moderate on small corn in widely scattered fields over extreme southeast area. Smaller larvae working down in whorls. Because of hot, dry weather, larger larvae feeding just below ground surface. (Kyd, Thomas). VIRGINIA - Feeding on corn tassels, Appomattox County, caused tassels to weaken and drop or fall over. (Rowell, Smith).

FLEA BEETLES - NEW YORK - Active on sweet corn in Livingston County, with apparently little damage. Less evident on older plants in Hudson Valley. (N. Y. Wkly. Rpt., June 30). TEXAS - Caused light damage on grain sorghum, Dimmit County. (Harding). MARYLAND - Chaetocnema pulicaria adults averaged 5 per sweet corn plant in whorl stage at Price. Bacterial wilt noticeable in some fields. (U. Md., Ent. Dept.).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - TEXAS - Damaged grain sorghum in Brazos and Burleson Counties. (Randolph).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Damaged Sudan grass in Erath County. First appearance. (Hawkins). Damaged peanuts in Frio and Erath Counties. (Harding, Hawkins).

SAP BEETLES - DELAWARE - Carpophilus lugubris numerous in tassels and silk of sweet corn, Sussex County. (MacCreary, Conrad). NORTH CAROLINA - Feeding on corn silks and tips, Randolph County. (Scott, Farrier).

SLUGS - OHIO - Injury severe to young corn plants following alfalfa over much of northeastern part of State. Persistence attributed to excessive soil moisture. (Neiswander).

SORGHUM WEBWORM (Celama sorghiella) - TEXAS - Pupae in grain sorghum, Brazos and Burleson Counties. (Randolph).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Moths emerging in Lafayette County, full grown larvae and pupae in Woodruff County. About 50 percent of larvae have pupated. (Ark. Ins. Rpt.). LOUISIANA - Appeared on late corn, Caddo and Bossier Parishes. (Spink).

STALK BORER (Papaipema nebris) - SOUTH CAROLINA - Reported from Aiken County. (Nettles et al.). NEW YORK - Much more prevalent than in several years. (N. Y. Wkly. Rpt., June 30). MAINE - Probably Papaipema sp. caused moderate to severe damage to young corn at Presque Isle. (Shands).

STINK BUGS - ALABAMA - Nezara viridula light to moderate on corn, Escambia County. (Grimes). OKLAHOMA - Murgantia histrionica averaged 3 per 10 sweeps in one Texas County alfalfa field. (Coppock). TEXAS - Light to medium on grain sorghum, Brazos and Burleson Counties. (Randolph). NEVADA - Chlorochroa sayi numbers moderate on grain in Kings River Valley, Humboldt County. (Galloway, June 27). COLORADO - Spotted infestations of C. sayi in wheat and barley fields, Larimer County. (Ext. Ser., Exp. Sta.). IDAHO - C. sayi adults relatively abundant, but still below economic levels and general on dryland wheat in American Falls, Rockland, Roy and Arbon areas. (Schow). NEW MEXICO - Chlorochroa sayi damaged pinto beans in many Luna County fields. (N. M. Coop. Rpt.).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Second-generation larvae very light on young corn, St. Landry and Avoyelles Parishes. (Spink).

WIREWORMS - IDAHO - Reported in Cooperative Economic Insect Report 8(23):476 as attacking alfalfa crown buds and corn identified as Limonijs californicus. (Gittins). DELAWARE - Destroyed one-quarter acre of field corn, New Castle County. (Bray).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Continued to increase range in State. Larvae on second-cutting alfalfa. (Wheeler, June 30). DELEWARE - Adults averaged 260 per 30 sweeps in alfalfa-orchard grass field in New Castle County. Invaded houses bordering field, June 27. Adults and larvae prevalent in portions of Kent County. (MacCreary, Conrad). MARYLAND - First-generation adults averaged 2 per sweep on alfalfa, Queen Annes County. Few larvae present. (U. Md., Ent. Dept.). VIRGINIA - Caused severe damage to alfalfa in one area of Loudoun County where crops were sprayed before first cutting was removed. Some newly hatched larvae present. (Brown). Late stage larvae medium on alfalfa in localized areas, Shenandoah County. (Coiner). IDAHO - Larvae numerous on alfalfa throughout southwestern areas, usually below economic levels. (Waters). WYOMING - Very heavy on elk range, Teton County, with alfalfa being cut. (Davison). UTAH - Caused moderate damage to alfalfa at Enterprise. (Knowlton).

ARMYWORM (Pseudaletia unipuncta) - IOWA - Large numbers of moths appearing in light traps at Ames, Ankeny and Bancroft. Newly-hatched larvae in rain-lodged oats and bluegrass, Story County. (Iowa Ins. Inf.). OHIO - Prevalent on grains and grasses in southern and southwestern areas during past 3-4 weeks, injury now largely subsided. (Goleman). COLORADO - Peak flight recorded June 16 at Springfield, Baca County. (Exp. Sta.). WISCONSIN - Very low numbers of third-instar larvae in a Dane County corn field, concentrated along fence rows. Light trap catches declining. (Wis. Coop. Sur.). SOUTH DAKOTA - Caused some damage to a rye field in Moody County. (Hantsbarger).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - MAINE - Heavy migration flights at Presque Isle June 29 and July 2. General on oats. (Shands).

BEE WEBWORM (*Loxostege sticticalis*) - NORTH DAKOTA - Severe infestation damaged wheat in Devils Lake area, Ramsey County. Marginal counts ranged 100-200 larvae per sweep, field counts averaged 6-15 larvae per linear foot of row. Heavy and attacking flax, safflower and garden plantings in Beach area, Golden Valley County. Damaged soybeans at Gardner, Cass County. Scattered infestations expected over State as moth numbers have been high in many areas. (N. D. Ins. Rpt.).

BLACK BUTWORM (*Agrotis ypsilon*) - CALIFORNIA - Heavy in barley fields in Tule Lake area, Siskiyou County. Severe enough to require replanting and treatment. Light in Visalia area, Tulare County. (Cal. Coop. Rpt.). ILLINOIS - Destroyed one field of corn in extreme southern part of State. (Ill. Ins. Rpt.). MISSOURI - Full grown larvae of this species and *Feltia subgothica* damaged small corn in few fields in extreme southeast area. (Kyd, Thomas). OREGON - This species and *Peridroma margaritosa* infested several hundred acres of barley and some oat fields at Lower Klamath Lake, Klamath Falls, June 23. Spots 6-150 feet in diameter completely destroyed, with 10-30 percent of some fields damaged. (Schuh, Vertrees).

ENGLISH GRAIN APHID (*Macrosiphum granarium*) - MAINE - Much less abundant at Presque Isle than at same time in 1957. (Shands, June 28). MINNESOTA - Counts vary greatly from field to field, with as many as 200 per linear foot. Population reduction reported in some areas. Indications of predator buildup. (Minn. Ins. Rpt.). NORTH DAKOTA - Appears to be decreasing in eastern part of State. Averaged 3-4 per head on 50-60 percent of stems in headed wheat. No damage observed. Predators increased with 2-7 lady beetle larvae per square foot in some fields. (N. D. Ins. Rpt.). SOUTH DAKOTA - Numbers declined on small grains. (Hantsbarger). IDAHO - Occasional aphid on winter wheat in northern counties. Stem mothers colonizing on spring grains throughout northern section, spotted areas with up to one aphid per 3 plants. Over-all populations on northern grains relatively low. Predator activity, predominantly lady beetle and lacewing adults, extremely high. (Gittins, Portman). NEVADA - Moderate to heavy on grain in Grass Valley area, south of Winnemucca, Humboldt County. (Gallaway, June 27).

WHEAT STEM SAWFLIES (*Cephus* spp.) - VIRGINIA - Larvae of *C. pygmaeus* caused lodging of wheat in several fields, one area of Stafford County. (Morris, Beck). SOUTH DAKOTA - *C. cinctus* on winter wheat in Haakon County caused up to 5 percent damage to crop. (Hantsbarger).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - SOUTH DAKOTA - Averaged 3 per 10 sweeps on alfalfa in north central region. (Hantsbarger).

BLISTER BEETLES (*Epicauta* spp.) - OKLAHOMA - Numerous in alfalfa throughout State. Averaged 50-80 per 10 sweeps in one Cimarron County field. (Coppock). LOUISIANA - Heavy localized and spotty infested areas in alfalfa, Tensas Parish. (Spink). NORTH DAKOTA - Damaged soybeans at one location near Gardner, Cass County. (N. D. Ins. Rpt.). MISSOURI - Caused heavy defoliation to very small spots in soybean fields in scattered southeast areas. (Kyd, Thomas). WYOMING - In alfalfa in Buffalo area, Johnson County. Very little damage. (Davison).

CLOVER ROOT BORER (*Hylastinus obscurus*) - IDAHO - In all red clover fields checked in Boise Valley area. (Waters).

GARDEN WEBWORM (Loxostege similalis) - DELAWARE - Few larvae in western Kent County alfalfa. (MacCreary, Conrad). ILLINOIS - Appearing on corn and soybeans in extreme southern part of State. (Ill. Ins. Rpt.). MISSOURI - Larvae damaged small corn, grain sorghum, soybeans, cotton and alfalfa over much of State. General and heavy on alfalfa, remained very spotted and scattered on all field crops. (Kyd, Thomas). LOUISIANA - Light to moderate on older alfalfa, Caddo Parish. (Spink).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Increased on soybeans, clovers and alfalfa throughout State. Averaged 15-20 per 10 sweeps on alfalfa, upper Sussex County, and 10 per 10 sweeps in one central Kent County field. Heavy on soybeans, Sussex County. Gradual decrease in numbers northward. (MacCreary, Conrad). MARYLAND - Averaged 1-3 per sweep on alfalfa, Howard and Queen Annes Counties, all instars present. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Scattered individuals on field corn throughout State, no apparent damage. Averaged 1 per 10 sweeps in alfalfa. Caused moderate damage to soybeans in central Kent and upper Sussex County. (MacCreary, Conrad).

LYGUS BUGS (Lygus spp.) - LOUISIANA - L. lineolaris light to moderate on blooming alfalfa, Caddo Parish. (Spink). IDAHO - Generally above 4 per sweep in untreated alfalfa fields checked throughout southwestern section. (Waters). Abundant on approximately 30 acres of safflower and caused noticeable damage to buds. (Schow). L. elisus and L. hesperus averaged 4 per sweep in alfalfa fields sampled in Bruneau and Grandview areas, Owyhee County. (Gittins). NEVADA - Moderate to heavy populations on seed crops in Orovada area, Humboldt County, reduced by treatment of fields. (Gallaway, Hilbig, June 27). NEW MEXICO - Heavy in seed alfalfa at Hagerman and Dexter, Chaves County. Nymphs becoming numerous in alfalfa fields throughout State. (N. M. Coop. Rpt.). ARIZONA - Caused considerable damage to sweet corn in Pinal County. (Countryman, June 16). Large numbers in Graham County alfalfa fields, 30-40 per 10 sweeps. (Woodruff, June 16). Caused severe damage in Pinal County with 6,032 acres controlled. Increased, with up to 116 per 100 sweeps in 3 fields, Graham County. One treated field showed 12 per 100 sweeps. (Miller).

A NITIDULID (Meligethes nigrescens) - OREGON - Migrating to red clover about 2 weeks earlier than in 1957. (Crowell).

PEA APHID (Macrosiphum pisi) - MARYLAND - Generally light on alfalfa in all sections of State. (U. Md., Ent. Dept.). DELAWARE - Decreased in alfalfa throughout State. (MacCreary, Conrad). MINNESOTA - Remained high in all districts, 125-600 per 10 sweeps in alfalfa. (Minn. Ins. Rpt.). NORTH DAKOTA - Continued high in alfalfa. (N.D. Ins. Rpt.). SOUTH DAKOTA - Numbers on decline on alfalfa. (Hantsbarger). OKLAHOMA - Light in a few, scattered alfalfa fields in northwest and panhandle counties. None found in most fields. (Coppock). NEVADA - Heavy on alfalfa in Orovada area, Humboldt County. Treatment begun in many fields. (Gallaway, June 27).

POTATO LEAFHOPPER (Empoasca fabae) - MASSACHUSETTS - Uncommon on most second-cutting alfalfa. (Wheeler, June 30). MARYLAND - Averaged less than one per sweep on alfalfa, Howard and Queen Annes Counties. Generally lighter than at same time in 1957. (U. Md., Ent. Dept.). WISCONSIN - Low in central and southern alfalfa fields, but may be threat to quality second-crop hay. Averaged 2-4 nymphs per 100 sweeps in Dane County alfalfa. (Wis. Coop. Sur.). OKLAHOMA - First 1958 records were May 20 in Garvin and Cleveland Counties and May 21 in Carter County. (Coppock).

A PSYCHID (*Apterona crenulella*) - IDAHO - Extremely abundant on small stand of alfalfa and sweetclover in Bear River Valley near Preston. Caused considerable skeletonizing of foliage. (Gittins).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Population building up rapidly in Yuma area, Yuma County. Situation dangerous as there are almost no predators present. (Roth, June 24.). Increasing over southern part of State. Noted about June 25 when light summer rains and hot weather began. (Miller). OKLAHOMA - Exceedingly low in panhandle and other northwest counties. None found in some fields. (Coppock). COLORADO - Averaged 2-5 per sweep in New Liberty area, Mesa County, June 27. (Exp. Sta.). TEXAS - Medium to heavy on alfalfa in Brazos and Burleson Counties. (Randolph). NEW MEXICO - Generally light in southern part of State. Still some control in alfalfa fields in Chaves County. (N.M. Coop. Rpt.). UTAH - Not yet damaging in southwestern part of State. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ALABAMA - Heavy in Butler County alfalfa. (Guyton). LOUISIANA - Moderate on alfalfa, East Baton Rouge Parish. (Spink). TEXAS - Averaged 12-25 per sweep on alfalfa, Brazos and Burleson Counties. (Randolph). Caused some damage to peanuts, Fayette County. (Garner).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - ILLINOIS - One field in extreme southern part of State with 90 percent of plants fed upon by 2 worms per plant. (Ill. Ins. Rpt.). DELAWARE - Few on soybeans, alfalfa and corn throughout State. Damage negligible. (MacCreary, Conrad).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Caused light damage to soybeans in Escambia County. (Grimes). DELAWARE - Caused light to moderate damage to soybeans, upper Sussex County. (MacCreary, Conrad).

PAINTED-LADY (*Vanessa cardui*) - MINNESOTA - Larvae feeding on thistle and cocklebur in Jackson and Nicollet Counties, and at least one instance, have moved to soybeans. (Minn. Ins. Rpt.). WISCONSIN - Larvae on thistles in Rock, Jefferson and Columbia Counties, may become problem on peas not treated for pea aphid. (Wis. Coop. Sur.). IDAHO - Newly emerged adults becoming very common throughout northern counties. Some larval injury to hollyhocks in Moscow area. (Gittins, Portman).

A SERPENTINE LEAFMINER (*Liriomyza* sp.) - FLORIDA - Eggs, larvae and adults averaged 3-20 per plant on cowpeas, Alachua County. (Fla. Coop. Sur.).

RED-NECKED PEANUTWORM (*Stegasta basqueella*) - TEXAS - Damaged peanuts in Houston County. (Garner). GEORGIA - Light on peanuts in several southern counties. (Johnson).

THRIPS - ARIZONA - Caused considerable damage in a 20-acre field of sweet corn, Pinal County. (Countryman, June 16). TEXAS - *Frankliniella* sp. heavy on peanuts in Comanche County. (Hawkins). MARYLAND - Caused light to moderate streaking of corn on Eastern Shore. (U. Md., Ent. Dept.). GEORGIA - Light to moderate on peanuts in several southern counties. (Johnson).

TOBACCO THRIPS (*Frankliniella fusca*) - ALABAMA - Caused extensive damage to peanuts in southern parts of State. All except late planted peanuts are past stage where there will be too much more damage. (Grimes).

A SKIPPER - LOUISIANA - Larvae, probably *Hylephila phylaeus*, as high as 16 per square foot of Bermuda grass sod in pasture at Lafayette. (Spink).

WHITE GRUBS (*Phyllophaga* spp.) - ILLINOIS - Leaf feeding evident on 70 percent of plants on one corn field, Champaign County. Averaged one soil entrance per plant for possible oviposition. (Ill. Ins. Rpt.). KANSAS - Damage to range grasses continued in flint hill region in east central area. Grubs averaged 6-8 per square yard in heavily infested areas. Range grasses being killed by vast numbers of larvae. Controls being applied in localized areas. (Burkhardt, Matthew).

ADDITIONAL NOTES

NEBRASKA - First-brood ARMYWORM activity about ceased in eastern portion of State. Light populations continue feeding in west. Heavy flights indicated at all light trap locations. (Andersen, Pruess). WHEAT HEAD ARMYWORM in wheat Hitchcock, Red Willow, Frontier, Keith and Lincoln Counties. Considerable injury to one field of rye in Lincoln County. (Pruess). HESSIAN FLY general in western area, little damage present. Caused lodging of wheat in southeast and south central regions. (Pruess, Andersen). VARIEGATED CUTWORM continued active in few Lincoln County alfalfa fields, averaged 6-10 per square foot. (Pruess).

NEW YORK - MEXICAN BEAN BEETLE plentiful in all western bean fields examined. Many egg masses present, no larvae seen. EUROPEAN CORN BORER egg masses on early and mid-whorl stage corn in western area. Early-instar larvae in Livingston County. Larvae in 13-17 percent of unsprayed sweet corn plants in Hudson Valley, 1-5 percent of variously sprayed plantings. Hatching and feeding on small corn in Monroe County. Egg masses on 10 percent of early corn, Nassau County. CORN EARWORM detectable in unsprayed Hudson Valley sweet corn. Eggs on 30 percent of early corn in silk, Nassau County. CODLING MOTH entries on unsprayed trees first noted June 23, very numerous by July 2. Peak of larval activity expected within next two weeks at Geneva. Activity increasing in Rockland County, emergence reached peak in Monroe County June 30. First fruit entry June 30. Emergence now at low level in Wayne County. First APPLE MAGGOT flies found in Rockland County July 3. Heavy numbers of ORIENTAL FRUIT MOTH caught in bait traps July 3, Rockland County. Injured peach twigs in Niagara County on same date. (N. Y. Wkly. Rpt.).

FRUIT INSECTS

APPLE APHID (Aphis pomi) - CONNECTICUT - Populations increased tremendously on new growth on apple trees, due to cool night and day temperatures, necessitating special control. (Johnson). PENNSYLVANIA - Persistent but not in large numbers, Blair County. Most aphids on apple sucker growth and a few on new twig growth. (Udine). MARYLAND - Heavy on apples in most orchards in Hancock area. (U. Md., Ent. Dept.). OHIO - Abundant in many orchards. (Cutright).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - First adult emerged June 25 at Waltham. (Wheeler). NEW YORK - Fly emergence started again on June 25 and is increasing in eastern area. (N.Y. Wkly. Rpt.). MICH. - Adults emerging, Shelby, June 30. (Hutson). WIS. - First adult May 28, Dane County. (Wis. Coop. Sur.).

APHIDS - RHODE ISLAND - On apple and blueberry at Westerly. (Caroselli). NEW YORK - Difficult to hold in check in orchards in Orange County. Building up in Columbia and Monroe Counties. Problem in Rockland County. (N. Y. Wkly. Rpt., June 30). NEW JERSEY - Problem on apples. (Ins. Dis. Newsl.). OHIO - Anuraphis roseus damage more severe than any other time in the last decade. (Cutright). UTAH - Severely infested plum and pecan trees in St. George-Santa Clara area of Washington County. (Knowlton).

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - Flight activity increased during the week of June 23 in eastern area. First entries at Geneva, June 23, eggs hatched in Monroe County beginning June 27. (N. Y. Wkly. Rpt.). NEW JERSEY - Few reports of fresh entries in apple. (Ins. Dis. Newsl.). OHIO - Stragglers still emerging in cages. No larvae under bands to July 3. Infestations light to date. (Cutright). INDIANA - No emergence of first-brood moths from emergence cages at Vincennes insectary. Second-brood larvae will not be active in Vincennes area before July 7 at earliest. (Hamilton). MINNESOTA - Active in fruit in all areas. (Minn. Ins. Rpt.). MISSOURI - New entries reported from all parts of State and larvae of all sizes found in many orchards. This indicates that first brood is well spread out and that there will be no break between first and second broods. (Wkly. Rpt. Fr. Grs.). UTAH - Moths numerous in several areas of Washington County. (Knowlton). CALIFORNIA - Light on walnuts in Hollister, San Benito County. (Cal. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - No second-brood larvae have been observed to date at Vincennes. (Hamilton). NEW YORK - First summer-brood moths caught June 27 in eastern area. (N. Y. Wkly. Rpt.). OHIO - Little damage by first generation. (Cutright). PENNSYLVANIA - Beginning to emerge, June 23, on apple in Adams County. Heavy emergence expected week ending July 5. (Asquith). Eggs found, June 26, Adams County. (Pepper).

APPLE AND THORN SKELETONIZER (Anthophila pariana) - IDAHO - Leaf rollers reported in CEIR 8(25):537 have been identified as above-named species. (Gittins).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Generally light except in a few orchards. (Cutright). INDIANA - Averaged 0-4.8 live mites and 0-37.6 eggs per leaf, June 30, depending on control applied. (Hamilton). MARYLAND - Very light on apples. (U. Md., Ent. Dept.).

MITES - INDIANA - Egg populations numerous enough in some apple orchards in Vincennes area to warrant control. Tetranychus telarius building up in one orchard. (Hamilton). Considerable population pressure on apples in Orleans area. (Marshall). NEW YORK - T. telarius building up in Orleans County. (N. Y. Wkly. Rpt., June 30). CALIFORNIA - Eotetranychus willamettei and Tetranychus pacificus medium on grapes in Lodi area, San Joaquin County. (Cal. Coop. Rpt.). NEW MEXICO - Bryobia praetiosa complex light, caused minor damage to apple foliage in 3 counties. (N. M. Coop. Rpt.). MASSACHUSETTS - Oligonychus ilicis bronzing cranberries locally near Wareham. (Wheeler, June 30).

A CHAFER (Diplotaxis popino) - ARIZONA - Seriously damaged peach trees and fruit in the Phoenix area. (Mendenhall, June 26).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Few on peach trees in central Kent County. No damage yet. (MacCreary, Conrad).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Damage conspicuous in several areas of Washington County. (Knowlton).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - OREGON - Adults emerging in Benton County, July 1. (Every).

A KATYDID - TEXAS - Species unknown, caused heavy damage to peaches in Brazos, Comanche, Erath and Hamilton Counties. (Hawkins).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MASSACHUSETTS - Terminal injury by first brood uncommon. (Wheeler, June 30). INDIANA - New entrance in peaches at Orleans is at a low ebb. (Marshall). MISSOURI - Some twig injury in southeast area. (Wkly. Rpt. Fr. Grs.).

PLUM CURCULIO (Conotrachelus nenuphar) - MASSACHUSETTS - Caused moderate damage to cultivated blueberries. (Wheeler, June 30). NEW YORK - Has been the most serious insect problem in orchards up to June 30 in Orange County. (N. Y. Wkly. Rpt.). MINNESOTA - Active within fruit in all areas. (Minn. Ins. Rpt.). MISSOURI - Small amount of feeding signs in southeast area, indicating adults of summer generation are out. (Wkly. Rpt. Fr. Grs.).

A CHRYSOMELID (Luperodes bivittatus) - CALIFORNIA - Heavy populations on apricot, peach and plum trees locally in Chico area of Butte County. (Cal. Coop. Rpt.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WASHINGTON - Overwintering forms migrating to buds. Severe in many pear orchards in Wenatchee Valley and Lake Chelan areas. (Burts). CALIFORNIA - Heavy on apple trees in Fort Jones area of Siskiyou County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Adults appearing in low numbers in pear orchards in Sunny Slope area, Canyon County. (Bechtolt).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - MICHIGAN - Eggs hatching in East Lansing, Detroit and Grand Rapids. (Hutson). MINNESOTA - Hatching southern half of State, July 7. (Minn. Ins. Rpt.). CALIFORNIA - L. corni complex light on plums and heavy on peaches in Chico, Butte County. (Cal. Coop. Rpt.).

CURRENT FRUIT WEEVIL (Pseudanthonomus validus) - MASSACHUSETTS - Caused moderate damage to cultivated blueberries. (Wheeler, June 30).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Lightly damaged boysenberries in St. Helena area, Napa County. Medium on blackberries at Fairfield, Solano County. (Cal. Coop. Rpt.).

CHERRY FRUITWORM (Grapholitha packardi) - MASSACHUSETTS - Adults abundant, laying eggs in blueberry planting, Barnstable County. (Wheeler, June 30).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Heavy in Gonzales County, second generation defoliating trees. (Garner).

WALNUT APHID (Chromaphis juglandicola) - CALIFORNIA - Medium on walnuts in Chico area, Butte County. (Cal. Coop. Rpt.). WASHINGTON - Moderate but increasing populations on walnut at Union Gap. (Landis).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Survey of an improved pecan orchard in Jefferson County showed 33 percent of nut clusters entered by first-generation larvae. (Flora). LOUISIANA - In pupal stage but just beginning to emerge in some areas. (Spink).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Continues serious on pecans throughout State. (Spink).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - No finds since November 26, 1957, making 213 fly-free days through June 27. (Fla. Coop. Sur.).

SHOT-HOLE BORER (Scolytus rugulosus) - UTAH - Serious in a number of Weber and Utah County orchards. (Knowlton).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - Population in Douglas-Casper area averaged 21 per 50 sweeps on matrimonyvine. None found on early potatoes. Population decreased rapidly north of Casper to an average of 2.5 per 50 sweeps on matrimonyvine in Midwest-Kaycee area. Only 1 psyllid in Big Horn Basin area in 400 sweeps of early potatoes and matrimonyvine; 1 in 100 sweeps of matrimonyvine in Rawlins while 13 found in Medicine Bow on same host. (Davison).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Heavy larval feeding locally on tomatoes. Adults and larvae common on potatoes. (MacCreary, Conrad). MASSACHUSETTS - All stages present at Amherst. Damage already serious in one planting of potatoes and eggplants. (Wheeler). PENNSYLVANIA - Adults and larvae on potato in Clearfield County, 15 in a 200 foot row. (Adams). FLORIDA - Averaged 2-3 adults and few eggs and larvae per plant on eggplant at Santa Fe, Alachua County. (Fla. Coop. Sur.).

APHIDS - NAINE - Aphis abbreviata, Macrosiphum solanifolii, Myzus persicae and M. solani increased in numbers as the spring migrations continued. Populations still small. (Shands). MASSACHUSETTS - Increasing on squash, cucumber and melons at Amherst. (Wheeler). NEW YORK - Abundant on early cabbage and tomatoes, Wayne County. (N. Y. Wkly. Rpt., June 30). VIRGINIA - Macrosiphum solanifolii heavy on tomatoes in localized areas of eastern Virginia. (Hofmaster). WISCONSIN - Increasing on beans in Trempealeau County area. (Wis. Coop. Sur.). NEW MEXICO - Brevicoryne brassicae building up rapidly on cabbage in Luna County. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Light on potatoes in Yakima and Adams Counties; moderate in Grant County where treatment now required. To July 4, 3000-4000 acres treated. (Landis). NORTH DAKOTA - Light infestations in several potato fields in Walsh and Pembina Counties. (Schulz).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - COLORADO - Beginning to appear in light traps at New Liberty, Mesa County, June 16 and Rocky Ford, Otero County, June 18. (Exp. Sta.). NORTH DAKOTA - Light in potatoes in Walsh and Pembina Counties. (Schulz). WISCONSIN - Population low in southeastern area but high in Rhinelander area. (Wis. Coop. Sur.).

THREE-LINED POTATO BEETLE (Lema trilineata) - PENNSYLVANIA - Beginning to show up on potato in Clearfield County. (Adams).

POTATO TUBERWORM (Gnorimoschema operculella). ARIZONA - Several car loads of potato tubers were dumped as a result of 20 percent infestation with larvae in Maricopa and Pinal Counties. (Miller).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Eggs numerous on tomato plants in fields around Deming, Luna County. (N. M. Coop. Rpt.). DELAWARE - Common on foliage and in fruits of tomatoes in southwestern Sussex County. (MacCreary, Conrad).

LYGUS BUGS (Lygus spp.) - ARIZONA - Caused considerable damage to cantaloup, Pinal County. (Countryman, June 16). WASHINGTON - Migrating from cut alfalfa to potatoes, damaging terminal leaflets on 200 acres at Kittitas. Light infestation. (Landis).

THRIPS - NEW JERSEY - Drying up of grain has hastened movement to vegetable crops. (Ins. Dis. Newsl.). WASHINGTON - Damaging potato leaves on 200 acres at Othello. Moderate infestation. (Landis).

HORNWORMS (Protoparce spp.) - NEW MEXICO - Generally moderate to heavy, damaging tomatoes in Luna and Dona Ana Counties. (N. M. Coop. Rpt.). DELAWARE - Small larvae common on tomatoes in southwestern Sussex County. (MacCreary, Conrad). ARIZONA - Larvae damaged tomatoes in Graham, Greenlee and Cochise Counties. (Mendenhall, June 26).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Mostly late-instar larvae in potatoes in western Kent County, many pupating. (MacCreary, Conrad). VIRGINIA - Damaged potato plants in Henrico County. (Rowell, Davis).

PEA APHID (Macrosiphum pisi) - IDAHO - Populations generally low on peas in Benewah and Kootenai Counties. (Portman, Gittins). WASHINGTON - Much heavier than usual in Walla Walla area. Most peas intended for processing treated. (Cook).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Heavy infestations on string beans in Butler County. (Guyton). NEW YORK - Active for about 10 days as of June 27, two egg masses found. First egg mass found June 26 in Livingston County on early planting of snap beans. (N. Y. Wkly. Rpt., June 30). WYOMING - In small numbers in beans in Wheatland area. A few egg masses found. (Davison).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Considerable damage to beans in Butler County. (Guyton).

IMPORTED CABBAGEWORM (Pieris rapae) - MAINE - First adult seen June 23. (Shands). DELAWARE - Quite common in cabbage in western Kent County. (MacCreary, Conrad). VIRGINIA - Heavy on kale and collards on Eastern Shore. (Hofmaster).

DIAMONDBACK MOTH (Plutella maculipennis) - NEW YORK - Nuisance population present in Hudson Valley. (N. Y. Wkly. Rpt., June 30). VIRGINIA - Heavy on kale and collards on Eastern Shore. (Hofmaster).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Considerable damage to cabbage in Luna County. (N. M. Coop. Rpt.). DELAWARE - Larvae quite common in cabbage in western Kent County. (MacCreary, Conrad). VIRGINIA - Larvae on collards locally in Accomack County. (Hofmaster).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - NEW MEXICO - Damaging chili, bell peppers, squash and beans throughout Dona Ana County. (N. M. Coop. Rpt.). MASSACHUSETTS - Serious damage may occur at Amherst. (Wheeler). PENNSYLVANIA - Common on cucumbers all over Clearfield County. (Adams).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - PENNSYLVANIA - Common throughout Clearfield County on cucumbers. (Adams).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Abundant in sugar beet fields in Montrose, Delta and Mesa Counties. In Garfield County 40-60 per 100 sweeps. Curly top in sugar beets 15-85 percent. In tomatoes, western yellow blight showing a high incidence in Mesa County. In Delta County curly top incidence in sugar beets and tomatoes present but not as widespread as in Mesa County where commercial plantings and home gardens show high degree of incidence. (Exp. Sta.). UTAH - Curly top has completely taken some tomato patches and fields in Washington County. Others lost majority of plants. Abundant, with tomatoes 45-75 percent gone due to curly top in Weber and Box Elder County fields. (Knowlton). WASHINGTON - Largest light trap catch of season (June 23-27) at Walla Walla. (Cook).

BEET WEBWORM (Loxostege sticticalis) - IDAHO - A moderately heavy infestation of larvae in 15 acres of sugar beets near St. Anthony. Considerable feeding damage evident. (Garner). NORTH DAKOTA - Moth numbers continue high in sugar beet fields through northern Red River Valley. Control needed locally for larval infestations. (N. D. Ins. Rpt.).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Egg hatch beginning in northern valley counties. Some damage. (N. D. Ins. Rpt.).

A PYRAUSTID MOTH (Nomophila noctuella) - CALIFORNIA - Reported as damaging lettuce and seedling lettuce plantings. Medium infestations near Castroville, Monterey County. This moth is not usually associated with lettuce. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on hops in Sloughouse area, Sacramento County. (Cal. Coop. Rpt.).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Worst outbreak since 1900 in western Washington. Damaging vegetable crops and ornamentals. Peridroma margaritosa also involved in this infestation. (Howitt).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Common on asparagus ferns in central Kent County. (MacCreary, Conrad).

ASPARAGUS BEETLES (Crioceris spp.) - DELAWARE - C. asparagi and C. duodecimpunctata prevalent on asparagus ferns in New Castle County. (MacCreary, Conrad).

ONION MAGGOT (Hylemya antiqua) - WASHINGTON - Worse in Moses Lake than for many years, 30 percent cullage in one packing shed. (Landis). OREGON - Second brood now appearing at Lake Labish with populations low the week of June 29. (Crowell). IDAHO - First generation about 50 percent pupated and adults of second generation emerging in Canyon County as of June 30. (Scott). WISCONSIN - Continues to be problem. More of a statewide pest than heretofore. (Wis. Coop. Sur.). MICHIGAN - Pupating in 6 areas on June 26. (Hutson). NEW YORK - Heavy in sets and continued to injure some seed onions, Rockland County. Damage widespread in Orange County. (N. Y. Wkly. Rpt., June 30). MASSACHUSETTS - Flies very abundant and laying eggs, Amherst. (Wheeler).

FLEA BEETLES - MAINE - Injury to potatoes very light. (Shands, June 28). ALABAMA - Heavy infestations of Disonycha sp. on beans in Butler County. (Guyton).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MASSACHUSETTS - Adults on strawberries June 18. (Wheeler).

A GROUND BEETLE (Harpalus pennsylvanicus) - CALIFORNIA - Heavily attacking strawberries in Merced area of Merced County in a field adjacent to a recently-plowed grain field. Individual seeds were removed from the fruit without feeding on the flesh. Slight injury by removal of seeds caused a more rapid breakdown of the strawberries. (Cal. Coop. Rpt.).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light on tobacco in St. Marys County. (U. Md., Ent. Dept.).

HORNWORMS (Protoparce spp.) - MARYLAND - Light on tobacco in St. Marys County. No moths taken at Fairland. No heavy infestations reported to date. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Adults injuring tobacco in local areas in Duplin, Martin and Pender Counties. (Brady, Jones, Reid, Scott).

SOUTHERN POTATO WIREWORM (Conoderus falli) - FLORIDA - Larvae, pupae and adults averaged 4 per 10 tobacco plants on 2 acres of shade tobacco at Quincy, Gadsden County. Estimate about 40 percent of plants damaged and about half had to be reset. Det. T. J. Spilman. (Fla. Coop. Sur., June 27).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light to moderate on tobacco. Few heavy infestations central St. Marys County. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in several southern counties. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - First generation in lower southeast counties out. Hoke County square infestation low but weevils in all fields. Anson County 3 to 9 percent infestation in 14 fields examined. Warren and Chowan Counties negative in all fields examined. (Cott. News Lett.). SOUTH CAROLINA - Percent infestation decreased slightly due to increase in number of squares. Florence area where insecticides applied virtually no adults and less than 3 percent infestation. (Cott. Lett., Fye et al.). TENNESSEE - Light population in southern tier of counties, no weevils found north of regular infested portion west Tennessee. Controls started infested area, one treated field 10 percent infested. (Locke). GEORGIA - Counts in 42 middle and south Georgia fields ranged from one to 45 percent punctured squares with average of 19.25 percent. First generation weevils in south Georgia fields. (Johnson). ALABAMA - Increasing in south and central areas of State. Counts ranged from 2 percent in treated fields to 62 percent in untreated fields. (Grimes). MISSISSIPPI - Infestations remain exceptionally light and spotty, all counts below 5 percent. Some first generation but no high populations found in delta. (Merkl et al.). LOUISIANA - Madison Parish counts; 43 treated fields averaged 8 weevils per acre, 66 untreated fields averaged 19. Square infestations were 9 percent in 22 treated fields, 33 percent in two untreated fields. Record brood expected last week in July. (Smith et al.). TEXAS - Increased activity in most areas; especially in northeast, east, south central, upper coastal, coastal bend and southwest. (Gaines). ARK. - Emergence continues from hibernation quarters. Some first generation emergence in Drew County but general heavy first-generation emergence expected July 15-20. (Ark. Ins. Rpt.).

BOLLWORMS (Heliothis spp. et al.) - NORTH CAROLINA - No general build up underway but situation is of concern with so much late cotton. (Cott. News Lett.). SOUTH CAROLINA - Population continues to build up in most of State. Eighteen times as many moths caught at Florence week ending June 18 as during same period in 1957. (Cott. Lett.). GEORGIA - Forty-two fields examined in middle and south Georgia, all infested. Egg counts ranged from zero to 31, averaging 6.5 per 100 terminals. Larvae ranged from zero to 11, averaging 2.9 per 100 terminals. (Johnson). TENNESSEE - Light but general and on increase. Damage

anticipated. (Locke). ALABAMA - Decreased to some degree in south and central parts of State. Counts made in 22 fields averaged approximately 8 eggs per 100 terminals. (Grimes). MISSISSIPPI - Little activity reported; between broods in delta counties. (Merkl et al.). LOUISIANA - Square infestation averaged 4 percent in 23 infested fields, 24 inspected. (Smith et al.). ARKANSAS - Eggs and larvae on decline in most cotton fields. Pupation underway, even with attraction of corn heavy influx of moths into cotton expected after July 15 when emergence is expected to begin. (Ark. Ins. Rpt.). MISSOURI - Light infestations in 152 of 750 fields scouted; 1 to 6 eggs and 1 to 8 larvae per 100 terminals, predators controlling small larvae. (Kyd, Thomas). TEX. - Light to medium except Lower Rio Grande Valley where heavy infestations reported. (Gaines). ARIZONA - None to very few in Pima, Pinal and Maricopa Counties. (Bottger et al.). NEW MEXICO - Appear to be building up rapidly in Chaves and Eddy Counties. Eggs abundant on cotton in Dona Ana and Luna Counties. (N.M. Coop. Rpt.). CALIFORNIA - *H. zea* light in cotton plantings in Blythe, Thermal and Coachella areas of Riverside County. (Cal. Coop. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - TEXAS - Light throughout State. (Gaines). FLORIDA - Larvae collected from hibiscus blooms at Plantation Key, Monroe County. (Fla. Coop. Sur.). CALIFORNIA - Blossom survey of 2093 acres of cotton in Imperial and Riverside Counties by Federal, State and County personnel was negative. (Cal. Coop. Rpt.).

BEET ARMYWORM (*Laphygma exigua*) - CALIFORNIA - Light on cotton in Blyth-Ripely area, Riverside County, and Holtville area, Imperial County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Present but not abundant in fields examined in Pima and Pinal Counties. (Bottger et al.). GEORGIA - Light infestations in Tift, Colquitt and Cook Counties. (Johnson).

CLICK BEETLES - MISSISSIPPI - Damage to small squares and terminal buds of cotton. Counts of 30 to 50 adults per 100 plants reported delta area. (Merkl et al.).

COTTON APHID (*Aphis gossypii*) - ALABAMA - Heavy on Geneva County cotton. Light to medium in other south and central areas. (Grimes). GEORGIA - Moderate to heavy in 13 eastern and southeastern counties. Light in Thomas, Johnson, Washington, Jefferson and Hancock Counties. (Johnson). TENNESSEE - Light to heavy, growth of small cotton being retarded in northern counties. Predators reducing growth but weather becoming favorable for build up. (Locke). MISSOURI - Greatly declined, present problem over due to heavy predator and parasite populations. (Kyd, Thomas). ARKANSAS - On decline except where fields treated with insecticides. (Ark. Ins. Rpt.). TEXAS - Heavy infestations northwest area. (Gaines).

COTTON LEAF PERFERATOR (*Bucculatrix thurberiella*) - ARIZONA - Populations remained static in Pinal County. (Countryman, June 16).

COTTON SQUARE BORER (*Strymon melinus*) - CALIFORNIA - Light on cotton squares in Thermal-Coachella areas, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - ARKANSAS - Larvae found in a cotton field in Craighead County, located close to infested corn field. (Ark. Ins. Rpt.).

GRASSHOPPERS - TEXAS - Caused severe damage in northwest area and some damage on field margins in upper coastal, central and north central areas. (Gaines). SOUTH CAROLINA - Causing some damage to cotton in Berkeley County. (Cott. Lett.).

FLEAHOPPERS - ALABAMA - Psallus seriatus damage found in most every field surveyed. Infestations generally light to medium. (Grimes, Rawson). MISSISSIPPI - Light infestations still common in untreated delta fields. (Merkl et al.). LOUISIANA - Difficult to find most cotton fields Madison Parish. Average 2.13 fleahoppers per 100 terminals in 6 infested fields scouted. (Smith et al). TEXAS - Range from light to heavy in all areas of State. (Gaines). TENNESSEE - Causing considerable damage to young squares, controls necessary in many fields to set squares. (Locke). ARKANSAS - Very few fleahoppers found. (Ark. Ins. Rpt.) SOUTH CAROLINA - Damaging untreated cotton. (Cott. Lett.). NEW MEXICO - Generally moderate to heavy infestations damaging cotton in southern part of State. (N.M. Coop. Rpt.). ARIZONA - Little change in population of a black fleahopper, few Maricopa County fields had populations up to 15 per 100 sweeps, numbers decreased in Pima County. (Bottger et al.).

PLANT BUGS - MISSISSIPPI - L. lineolaris causing more damage than any other insect in delta area. (Merkl et al.). LOUISIANA - L. lineolaris rather abundant and apparently causing considerable damage in Madison Parish, counts averaged 22 per 100 sweeps. (Smith et al). ALABAMA - Lygus lineolaris continued to present minor problems in central area. (Rawson). NEW MEXICO - Generally heavy infestations on cotton in southern counties. Counts ranged 8 to 80 per 100 sweeps in Luna County. (N.M. Coop. Rpt.). ARIZONA - Populations decreasing Pima County. Remain high in some areas Pinal County where more than 6000 acres treated. (Bottger et al.; Miller).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Light in Blythe area, Riverside County. (Cal. Coop. Rpt.).

SPIDER MITES - ALABAMA - Infestations on experimental cotton plots in Autauga County increased to point necessitating treatment. (Rawson). SOUTH CAROLINA - Becoming problem in fields where rainfall deficient. (Cott. Lett.). MISSOURI - Very spotted infestations, spot treatment in several fields. (Kyd, Thomas). GEORGIA - Light infestations in southeastern counties. (Johnson). ARIZONA - Populations on decline in Waddell area of Maricopa County due to high humidity and activity of Orius spp., averages one per cotton leaf. (Bottger et al.).

STALK BORER (Papaipema nebris) - TENNESSEE - Causing heaviest damage this season than any since survey started. (Locke). ARKANSAS - Found in cotton in Craighead County during week ending June 28. (Ark. Ins. Rpt.).

STINK BUGS - ARIZONA - Low populations all areas. (Bottger et al.). NEW MEXICO - Chlorochroa sayi moderate to heavy spotty infestations damaging squares and bolls in Luna and Hidalgo Counties. (N. M. Coop. Rpt.).

THRIPS - ALABAMA - Heavy in young squares and in blooms of Autauga County cotton. Rather unusual for this time of year. Feeding could cause damage to young squares. (Rawson, Grimes). LOUISIANA - Counts in 35 fields inspected averaged 1.41 per plant, some damage still occurring in presquare late cotton. (Smith et al.). TEXAS - Light in all areas except north plains. (Gaines). ARIZONA - Damaged cotton in Pinal County. (Countryman, June 16).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - Reported from Sault Ste. Marie for first time, 10 percent pupated June 17; 50 percent pupated at Harbor Springs June 16; 20 percent at McMillan June 17; 10 percent at Calumet June 18 and 30 percent at Epoufette on June 19. (Hutson).
 PENNSYLVANIA - Moth emergence heavy Indiana County late June. Averaged 12 moths per 4-foot red pine. (Udine).

FALL WEBWORM (Hyphantria cunea) NEW JERSEY - Reported in southern part of State. (Ins. Dis. News1.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - NORTH DAKOTA - Few spots of severe defoliation in native timber at Ft. Totten; pupation complete. (N. D. Ins. Rpt.). MINNESOTA - Aerial survey Duluth area and north of Cloquet indicates 250-300 square mile area of complete defoliation. Moderate to light on additional 300 square mile area. (Minn. Ins. Rpt.). WISCONSIN - Heavy defoliation in western Vilas and Oneida Counties. Pupating in northern counties. (Wis. Coop. Sur.).

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Larvae one-fourth to one-half inch long at Roscommon. (Hutson). WISCONSIN - Pupation complete in Adams County and emergence has begun. (Wis. Coop. Sur.).

LARCH SAWFLY (Pristiphora erichsonii) - MICHIGAN - Egg deposition at Gogebic June 19. (Hutson).

LARGE ASPEN TORTIX (Archips conflictana) - MICHIGAN - Pupating in Houghton, Ironwood, Ewen and Watersmeet areas. Complete defoliation some areas. (Hutson).

PINE SPITTLEBUG (Aphrophora parallela) - MICHIGAN - Mature nymphs present at Roscommon. (Hutson, July 1).

A PINE SAWFLY (Neodiprion pratti) - MASSACHUSETTS - Abundant on pitch pine. (Wheeler, June 30).

SPRUCE BUDWORM (Choristoneura fumiferana) - MICHIGAN - Small larvae at Keeweenaw. (Hutson, July 1). MINNESOTA - Pupation starting Superior National Forest. (Minn. Ins. Rpt., July 3).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MASSACHUSETTS - Infestations increased to damaging in drier parts of State. (Wheeler, June 30).

TORTRICIDS (Argyrotoxa spp.) - PENN. - A. semipurpurana and A. albicomana caused serious defoliation of oaks in south central area. Det. J.G. Franclemont. (Droos).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Outbreak developing rapidly in Big Thicket area, southeastern region, where 1950-51 outbreak was very destructive. Outbreak area involves 65,000 acres in Hardin County. (So. For. Pest Rpt., June 25).

CYCLAMEN MITE (Steneotarsonemus pallidus) - NEW JERSEY - Caused considerable distortion to delphinium. (Ins. Dis. News1.).

JAPANESE BEETLE (Popillia japonica) - NEW JERSEY - Active throughout State. (Ins. Dis. News1.). VIRGINIA - Damage moderate to severe on susceptible ornamental hosts throughout eastern two-thirds of the State. (Morris, et al.). MARYLAND - Light to moderate most sections. Few heavy infestations. (U. Md., Ent. Dept.). OHIO - Adults appearing in considerable numbers in several areas, from 10 days to 2 weeks later than in 1957. (Polivka). ILLINOIS - First adults appeared in Sheldon area of Iroquois County. (Ill. Ins. Rpt., July 3). MASSACHUSETTS - First adults at Amherst. (Wheeler).

AN APHID (Pemphigus bursarius) - CALIFORNIA - Heavy on Lombardy poplars at Greenfield, Monterey County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MASSACHUSETTS - Damaged perennials and some shrubs. (Wheeler, June 30). SOUTH DAKOTA - Abundant on various ornamentals in eastern part of State. (Hantsbarger).

BLISTER BEETLES - WEST VIRGINIA - Epicauta murina defoliating mimosa trees in Hampshire County. (W. Va. Ins. Sur., June 27). NORTH DAKOTA - High populations defoliating year old caragana liner stock in nurseries at Towner and Bottineau. (N. D. Ins. Rpt.).

A BOSTRICHID (Amphicerus cornutus) - ARIZONA - Pruning twigs and boring in limbs of paloverde trees in Phoenix area. (Mendenhall, June 26).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - NORTH DAKOTA - Eggs about to hatch in heavy infestations reported at Rugby, Pierce County. (N. D. Ins. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - VIRGINIA - Larvae damaged elms at Front Royal. (Coggsdale). Medium damage, Norfolk and Washington Counties. (Thomas, Groseclose, Morris). MARYLAND - Heavy this year. (U. Md., Ent. Dept.). DELAWARE - Heavy damage, pupating Sussex County, moderate to light in Kent and New Castle Counties. (McCreary, Conrad). WASHINGTON - Adult and larval damage in city of Yakima. (Landis).

WHITE PINE WEEVIL (Pissodes strobi) - VIRGINIA - Damaged most of native and planted stand of white pine locally in Montgomery County. (Rowell).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - First infestation noted Lanham. (U. Md., Ent. Dept.). DELAWARE - Low populations scattered in Kent and Sussex Counties. (McCreary, Conrad).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Aedes sollicitans heavy in Dare County, especially around Oregon Inlet. Light around Manteo, fairly heavy in Hyde and Pamlico Counties. (Usry). MINNESOTA - In 213 larval collections in Twin City area, Culex territans was present in 138 and in 23 biting collections, Aedes vexans was found in 15. (Minn. Ins. Rpt.). NEVADA - Aedes nigromaculis increasing in Minden area, Douglas County (Roberts, June 27) and Aedes spp. heavy in Gabbs, Nye County. (Rebuffo, June 27). CALIFORNIA - Light trap collections indicate Culex tarsalis most numerous species. C. stigmatosoma second most numerous in central coastal area and Sacramento Valley, replaced by C. quinquefasciatus in San Joaquin Valley. Culiseta inornata occurred more widely in central coastal area than elsewhere. (Peters).

HORN FLY (Siphona irritans) - OKLAHOMA - Averaged 200-300 per cow in northwestern counties. (Coppock). NEVADA - Increasing in Douglas County. (Roberts, June 27).

TABANIDS - ARKANSAS - Remained numerous in most areas of State. (Ark. Ins. Rpt.).

SWALLOW BUG (Oeciacus vicarius) - IDAHO - Heavy in a sawmill at Bovill, many workers bitten. (Manis).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - RHODE ISLAND - Swarming remains common. Three cases of foul brood discovered in Washington County. (Mathewson, Bannister, Boaro). MINNESOTA - Sweetclover bloom has started in Twin City area and bee colonies are gaining very rapidly. (Minn. Ins. Rpt.).

PREDATORS - ARIZONA - Increasing in all southern cotton fields, with as many as 30 lady beetles per 100 sweeps and 15-20 lacewings. (Miller). Collops sp., Nabis sp. and spiders continue abundant in most fields. (Bottger, Sheets, Kaufman).

MISCELLANEOUS INSECTS

ANTS - CONNECTICUT - Tetramorium caespitum and Camponotus herculeanus pennsylvanicus infested numerous homes, especially basements, during June. (Johnson). RHODE ISLAND - Alates of C. herculeanus pennsylvanicus generally evident. (Mathewson, Caroselli).

A CAMEL CRICKET - NORTH DAKOTA - Continued reports of home infestations in southeastern area of State. (N. D. Ins. Rpt.).

EUROPEAN EARWIG (Foricula auricularia) - MASSACHUSETTS - Very abundant and destructive to seedlings and small transplants. (Wheeler, June 30). RHODE ISLAND - Very heavy in and around Providence area. (Mathewson). Also in South Kingston. (Howard). CONNECTICUT - Invaded numerous homes and grounds in Westville area of New Haven. (Johnson). NEVADA - Caused moderate to heavy damage to plants in Reno-Sparks area, Washoe County. (Bechtel, Lauderdale, June 27).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - MASSACHUSETTS - Very abundant at Cambridge, killing weeds and moved to chrysanthemums and tomatoes. (Wheeler, June 30).

WHITE-FRINGED BEETLES (Grapholitha spp.) - FLORIDA - Larvae and pupae collected June 11 at Bratt, Escambia County. First adult reported June 11 at Milton, Santa Rosa County, and larvae collected in Walton County June 27. (Fla. Coop. Sur.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce sexta quinq.	Heliothis zea vires.
ARKANSAS						
Atkins 6/19-25	10	21		12		48
Fayetteville	6	16		9		17
Hope		1				2
Kelso	1	16		13		4
Morrilton	48	16				16
Stuttgart	7	4		13		4
FLORIDA						
Gainesville 7/1					1	
Quincey 6/30					3	
ILLINOIS						
Urbana 6/27-7/2	299	8	1	97		
KANSAS						
Hays 6/17-30	2766	235		485		2
Manhattan 6/26-30	74	6		20		
LOUISIANA						
Baton Rouge 6/27-7/2	6	2	277	3		
NEBRASKA						
Box Butte 7/1-7	1192					
Kearney	639					
Lincoln	2953					
North Platte	5751					
Scottsbluff	417					
MAINE						
Monmouth 6/29-7/5	15					
Orono 6/29-7/5	4					
Presque Isle 6/22-28	2					
MARYLAND						
Fairland 6/27-7/2	7	8	2	4		
MISSISSIPPI						
*Stoneville 6/27-7/3	89	74	200	17		9 4
NORTH CAROLINA						
Clayton 7/3	1		13		2	7
Faison 7/3			7		2	2
SOUTH CAROLINA						
Charleston 6/23-29	4	4	32	8	2	8 3
Clemson 6/28-7/4	3	15	18	8	5	35 1
Florence 6/29-7/5	11	24	176	30	7 2	504 78
TEXAS						
Brownsville 6/16-27	3	2	31			108 2

*Four traps - Stoneville

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

LARGE WHITE BUTTERFLY (Pieris brassicae (L.))

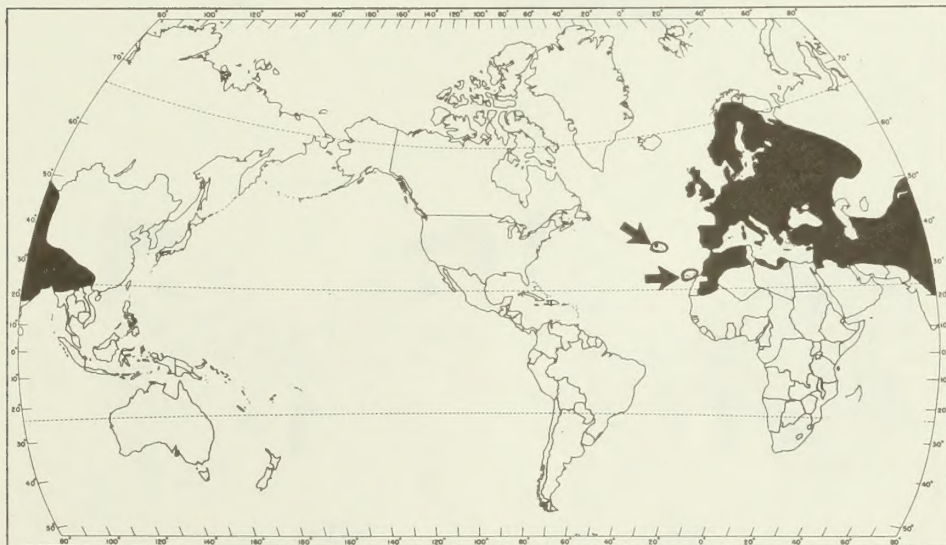
Economic Importance: Sporadic outbreaks of this pest occur throughout most of Europe. Such infestations cause serious losses to crucifers in Europe and Asia, and on occasions complete loss of the crop has been reported. The populations were so heavy in 1927 in Poland that control measures were not effective in preventing destruction of most of the food plants. Many host plants have been occasionally attacked. In Turkestan, USSR, during 1913, 90 percent of the cotton crop was destroyed in some areas. Generally the late broods are the most serious and are largely migrant. Serious populations have resulted in England from butterfly flights from the Continent, and large migrations have been observed in Switzerland passing over the Jura Mountains and the Alps southward.



Larval Damage

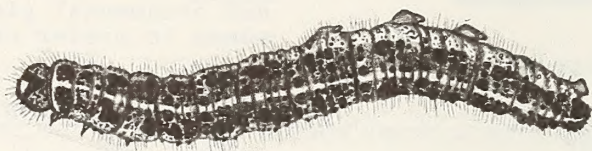
Distribution: Occurs throughout Europe, North Africa and the Middle East generally and range extends through northern India and southern Siberia to Tibet and China.

Hosts: Feeds on many crucifers, garden and ornamental plants; but generally seems to prefer crucifers.

General Distribution of Pieris brassicae

Life History and Habits: Adults emerge from the overwintering pupae in April or May. Eggs are laid in clusters, but sometimes singly, on the under surface of leaves, each cluster consists of 4 to 100 eggs. Eggs hatch in 5 to 8 days and larvae feed through five instars. The total period from egg to mature larva varies from 4 to 6 weeks. The chrysalis is attached to plants, sticks, stones, and especially to walls and fences. In England, there are generally two broods a year, the first laying eggs in May and the second in July and August. In USSR, however, three broods are reported, and sometimes a partial fourth brood is produced, though this is unusual. Normally the latter broods are heavily attacked by parasites.

Description: The adults of *Pieris brassicae* and *P. rapae* are similar in general coloration and markings, but *P. brassicae* is the larger of the two species, having a wing expanse of 60 mm. compared to 50 mm. in *P. rapae*. The markings on the wings of *P. brassicae* are as follows: Female forewing with blotch of black at tip, round spot near center of wing, another spot nearer the inner margin, and a tapering spot on the inner margin of its point toward the base of the wing. One spot on hindwing, situated near middle of coastal margin. No markings on forewing of male, with exception of those at tips. The larvae of *P. brassicae* and *P. rapae* more readily distinguishable; ground color of *P. brassicae* blue-green, spotted with black and *P. rapae* an intense leaf green, also spotted with black. In *P. brassicae*, a narrow, yellow median dorsal stripe is present, with two similar, but wider, stripes present on the sides. The median dorsal stripe in the larva of *P. rapae*, orange, with a broken yellow stripe on each side. Surface of body in both species covered with small, warty projections, each containing a hair. (Prepared in Plant Pest Survey Section in cooperation with other ARS agencies.) CEIR 8(28) 7-11-58



Larva



Female

Male

Figures (except map): All stages from Rostrup, S. and Thomsen, M. 1931. Die Tierischen Schädlinge des Ackerbaues. 367pp., Berlin. Larval damage from Balachowsky, A. and Mesnil, L. 1936. Les Insectes Nuisibles aux Plantes Cultivees. Vol. 2, pp. 1141-1921. Paris.

